

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl'n No.	:	10/665,722	Confirmation No.	:	4650
Filing Date	:	09/19/2003			
First Named Inventor	:	Victor Morozov			
Atty. Docket No.	:	GMU-08-013U			
Art Unit	:	1641			
Examiner	:	Jung, Unsu			

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Sir:

In response to the Final Office Action of 07/06/2010, having a shortened statutory period for reply ending 10/06/2010 and a one-month extension of time up to and including 11/08/2010, Applicants respectfully submit the instant Pre-Appeal Brief together with a Notice of Appeal and request reconsideration of the application in view of the following Remarks/Arguments.

I. Status of Claims

- A. Claims 21-23, 33-40 and 43-50 remain pending for review.
- B. Claims 1-7, 10-13, 31-32 and 41 are canceled.
- C. Claims 8-9, 14-20, 24-30 and 42 are withdrawn.
- D. Claims 21 and 46 are the independent claims.
- E. Claims 21, 35, 46 and 47 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Heller et al. (U.S. Patent No. 6,245,508) (hereinafter Heller) in view of Goldstein et al. (U.S. Patent No. 4,584,075) (hereinafter Goldstein).

F. Applicants respectfully note that there are further rejections directed to Applicant's independent claims which are not discussed in the instant pre-appeal brief since they depend on the combination of Heller and Goldstein.

II. Claim Rejections under 35 U.S.C. § 103(a).

A. The Examiner erred in concluding that the combination of Heller and Goldstein shows, discloses, teaches or suggests forming a plurality of isolated gaps as recited in claims 21-23, 33-40 and 43-45.

Claims 22-23, 33-40 and 43-45 directly or indirectly depend from claim 21. Claim 21 recites "...placing a second semi-permeable membrane in a position that is parallel to the first semi-permeable membrane, forming **a plurality of isolated gaps** with the first semi-permeable membrane..." (Emphasis added).

The Office Action asserts at page 20, lines 9-10 that "[s]ince the gaps would be formed within isolated channels of Heller, the gaps would also be isolated as currently recited in the claims." Applicants respectfully disagree.

Heller discloses at col. 10, lines 5-17 and FIG. 2A permeation layer 14 disposed above individual electrodes 12 having attachment regions 16A-16D corresponding to electrodes 12A-12D. Heller further expressly discloses at col. 10, lines 17-20 and FIG. 2A "[i]n operation, **reservoir 18 comprises that space above the attachment regions 16** that contains the desired, as well as undesired, materials for detection, analysis, or use." (Emphasis added). Goldstein discloses at col. 4, line 59-col. 5, line 6 and FIG. 1(b) compartment 6 is defined by barrier 3 and barrier 4.

Applicants respectfully submit that the combination of Heller and Goldstein fails to show, disclose, teach or suggest each and every element of the claims. This is apparent, since a plurality of isolated gaps would **not** be formed by the proposed combination, but instead, assuming *arguendo* the Office Action's characterization of Heller and Goldstein is correct, reservoir 18 of Heller would be maintained. Accordingly, Applicants respectfully request withdrawal of the rejections and favorable consideration of Claims 21-23, 33-40 and 43-45.

B. The Examiner erred in concluding that the combination of Heller and Goldstein is sufficient to render claim 21-23, 33-40 and 43-45 *prima facie* obvious.

Applicants respectfully note that “[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.” M.P.E.P. 2143.01(VI).

Heller discloses at col. 10, line 18-col. 11, line 11 that electrode 12A may be made positive and electrode 12D negative, such that electrophoretic lines of force 22 would run between the electrodes 12A and 12D and cause transport of charged binding entities 20 **in reservoir 18** toward 12A. Heller also discloses that electrodes 12B and 12C may be made negative, such that force lines 24 serve to drive away negatively charged binding entities 20 **in reservoir 18**. Heller further discloses at col. 11, lines 42-64 that attachment layer 16 may be deprotected, such that a net force field may emanate from electrode 12 through attachment layer 16 **out-into the reservoir 18**.

Assuming *arguendo* the references could be combined as proposed by the Office Action, Applicants respectfully submit that the combination of Heller and Goldstein is not sufficient to render the claims *prima facie* obvious. This is apparent, since forming isolated gaps would change the principle of operation of Heller that operates **using reservoir 18**, for example forming force line 22 to drive entity 20 in reservoir 18, forming force lines 24 to drive away entity 20 in reservoir 18 and/or forming a net force out-into reservoir 18. Accordingly, Applicants respectfully request withdrawal of the rejections and favorable consideration of Claims 21-23, 33-40 and 43-45.

C. The Examiner erred in concluding that Heller would be modified to include electrolyte solution to move analytes as recited in claims 21-23, 33-40 and 43-50 in view of Goldstein.

Applicants respectfully note that “[i]t is improper to combine references where the references teach away from their combination.” M.P.E.P. 2145(X)(D)(2). As acknowledged by the Office Action at page 21, lines 6-7, Goldstein discloses at col. 5, lines 7-30 “...electric current is continued for a period sufficient to reduce the pH at the interface to a value at which the ligate-ligand complex dissociates...” Therefore, Heller would not be modified to employ an electrolyte solution to electrophoretically move analytes toward probe molecules in light of the disclosure of **dissociation** in Goldstein.

Applicants also respectfully disagree with the Office Action at page 21, lines 7-9 that “...Goldstein also teaches the electric current for bringing biological material to immobilized affinity material (reactive surface)...” Applicants respectfully submit that Goldstein discloses **convective transfer** of a target ligate to a biospecific surface and

not electric current for bringing a target ligate to a biospecific surface. (see e.g., col. 4, lines 24-58). Accordingly, Applicants respectfully request withdrawal of the rejections and favorable consideration of Claims 21-23, 33-40 and 43-50.

D. The Examiner erred in concluding that Heller shows, discloses, teaches or suggests a first semi-permeable membrane attached at the bottom of wells of a microplate and adjacent a plurality of channels formed from wells as recited in claims 46-50.

Claims 47-50 directly or indirectly depend from claim 46. Claim 46 recites "...immobilizing first probe molecules onto a surface of a first semi-permeable membrane **attached to the bottom of wells** of a microplate and **adjacent a plurality of channels** formed from the wells..." (Emphasis added).

Heller discloses at col. 18, lines 10-11 that "[t]he permeation layer may be disposed within a well (see e.g., FIG. 2A)..." However, Heller does not show, disclose, teach or suggest each and every element of claims 46-50. This is apparent, since a permeation layer disposed within a well as disclosed in Heller is not a first semi-permeable membrane attached to the **bottom** of wells, and/or is not a first semi-permeable membrane **adjacent** a plurality of channels.

Respectfully submitted,

/ Edgar G. Rodriguez, Reg. No. 63,604/
Edgar G. Rodriguez, Reg. No. 63,604

George Mason University
Office of Technology Transfer, MSN 5G5
4400 University Drive
Fairfax, VA 22030
Phone: (703) 993-4103 (office)
E-mail: ott@gmu.edu